DATA SHEET

PART NO.: LT670WDT-UV-CW-B-S3

REV: A/0

CUSTOMER'S APPROVAL: _____ DCC: _____

SURFACE MOUNT DEVICE LED

LT670WDT-UV-CW-B-S3 REV:A/0

• Features

.Top view, wide view angle, black color PLCC-2 package.

.Suitable for all SMT assembly and solder process.

.High Luminous Intensity and high efficiency.

.Moisture sensitivity level:Level 5a.

.Available on tape and reel.

.UV resistance.

.RoHS compliant.

.Pb-free.

ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

• Applications

.Optical indicator

.Outdoor or Indoor display.

.Backlight for LCD, switch and symbol, display.

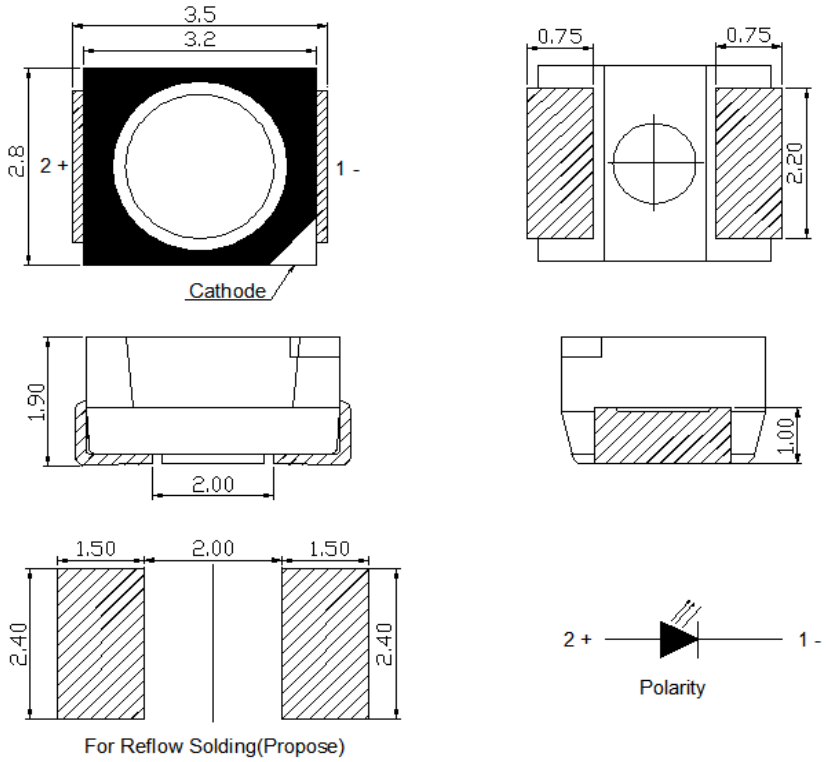
.General use.

• Chip Materials

.DiceMaterial :InGaN

.Lens Color : Yellow Diffused

• Package Dimensions



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.254mm (0.01”) unless otherwise specified.

• Electrical and optical characteristics(Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test
Luminous Intensity	IV	2000	2500	2800	mcd	IF =20mA
CIE Chromaticity	X	---	0.31	---		IF =20mA
	Y	---	0.315	---		IF =20mA
Relative Color Temperature	TC	6300	---	6800	K	IF =20mA
Forward Voltage	VF	2.6	3.0	3.4	V	IF =20mA
Color Rendition Index	Ra	80	---	---		IF =20mA
Reverse Current	IR	---	---	10	uA	VR=5V
Viewing Angle	2θ1/2	120			deg	---

• Absolute Maximum Ratings At Ta=25℃

Parameter	Symbol	Rating	Unit
Power Dissipation	Pd	102	mW
Peak Forward Current	IFP	80	mA
DC Forward Current	IF	30	mA
Reverse Voltage	VR	5	V
Electrostatic Discharge(HBM)	ESD	1500	V
Operating Temperature Range	Topr	-40°C ~ + 85°C	
Storage Temperature Range	Tstg	-40°C ~ +100°C	
Soldering Condition	Tsol	Reflow soldering : 260°C For 10 Seconds Hand soldering: 300°C For 3 Seconds	

Notes:

1.Luminous intensity is measured with a light sensor and filter combination that proximities the CIE eye-response curve.

2.θ1/2 is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

3.Caution in ESD :

Static Electricity and surge damages the LED. It is recommended use a wrist band or anti-electrostatic glove when handling the LED. All devices, equipment and machinery must be properly grounded.

4.Major standard testing equipment by “Instrument System” Model : CAS140B Compact Array Spectrometer and “KEITHLEY” Source Meter Model : 2400.

•Typical electro-optical characteristics curves

Fig.1 Relative Intensity vs. Wavelength

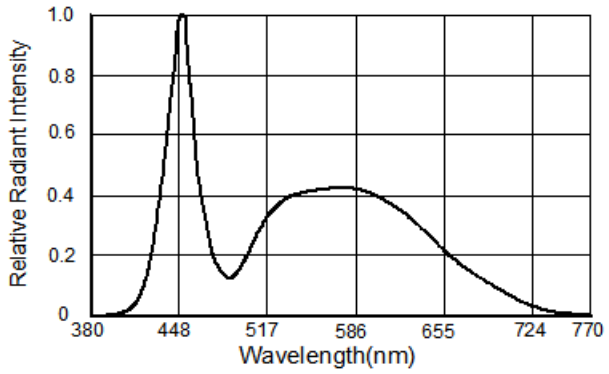


Fig.2 Forward Current vs.Ambient Temperature

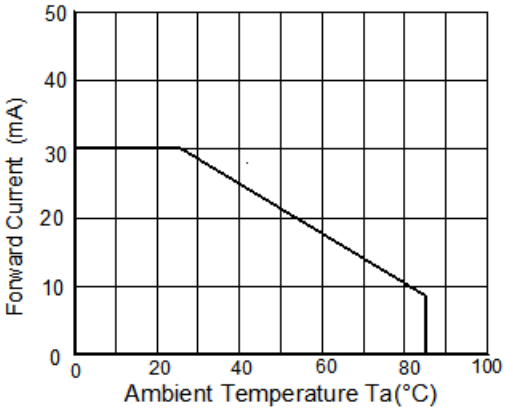


Fig.3 Forward Current vs. Forward Voltage

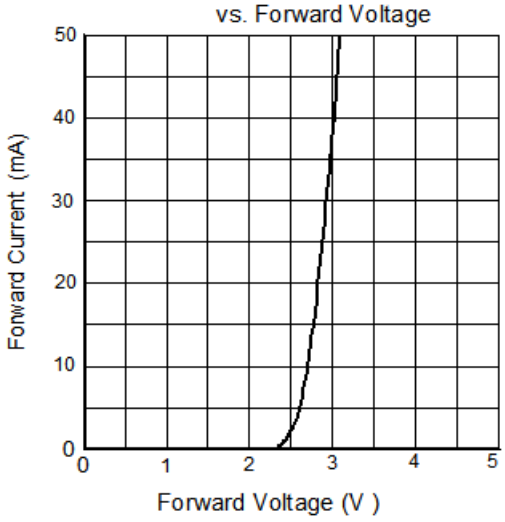


Fig.4 Relative Luminous Intensity vs. Ambient Temperature

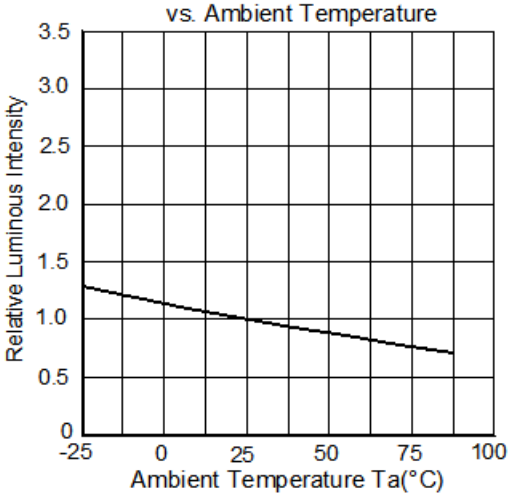


Fig.5 Relative Luminous Intensity vs. Forward Current

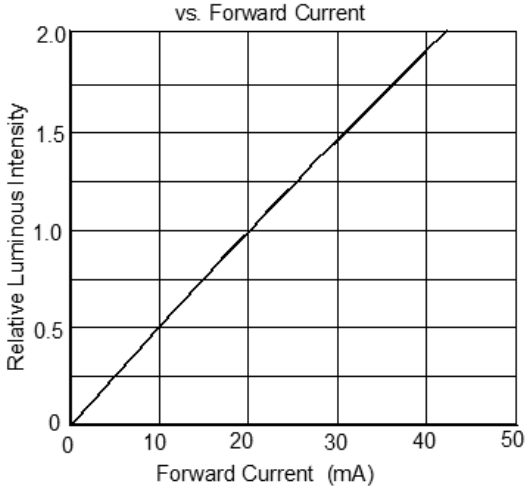
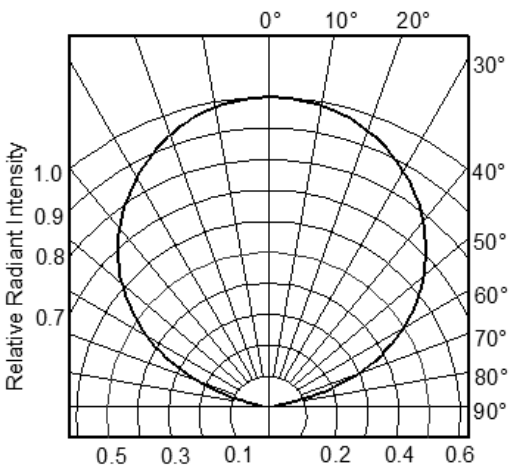


Fig.6 Radiation diagram(Ta=25°C)



•Bin Code List

Forward Voltage(VF) @IF=20mA		**Unit : V**
Bin Code	Min.	Max.
V08	2.7	2.9
V09	2.9	3.1
V10	3.1	3.3

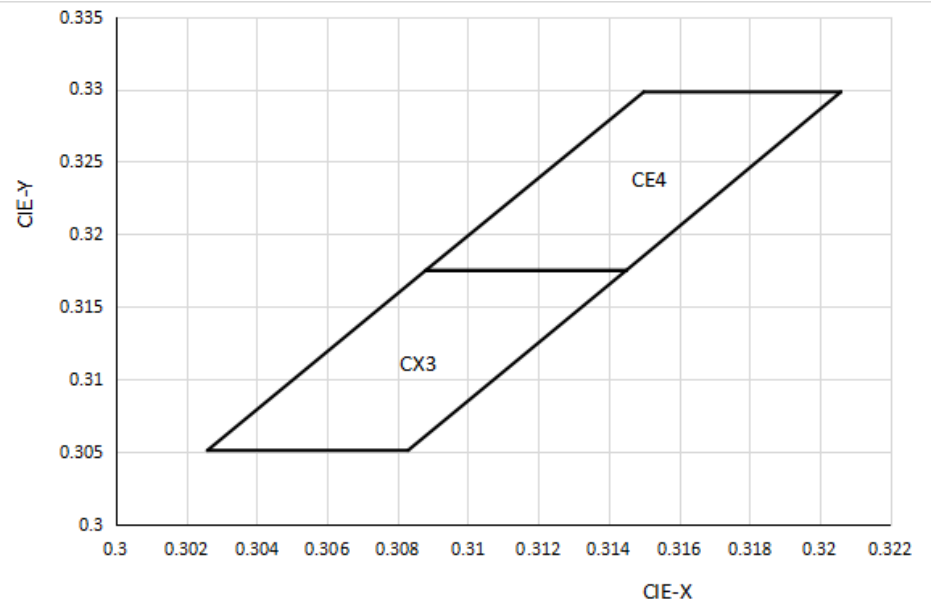
Note:Tolerance for each Forward Voltage Bin is ±0.05V.

Luminous Flux(Φ_V) @IF=20mA		**Unit : mcd**
Bin Code	Min.	Max.
L14	2000	2400
L15	2400	2800

Note:Tolerance for each Luminous Flux Bin is ±10%.

Color Bin

Bin	X	Y	Bin	X	Y
CX3	0.3088	0.3175	CE4	0.3150	0.3298
	0.3145	0.3175		0.3206	0.3298
	0.3083	0.3051		0.3145	0.3175
	0.3026	0.3051		0.3088	0.3175



Note:Tolerance for CIE Chromaticity is ±200K.

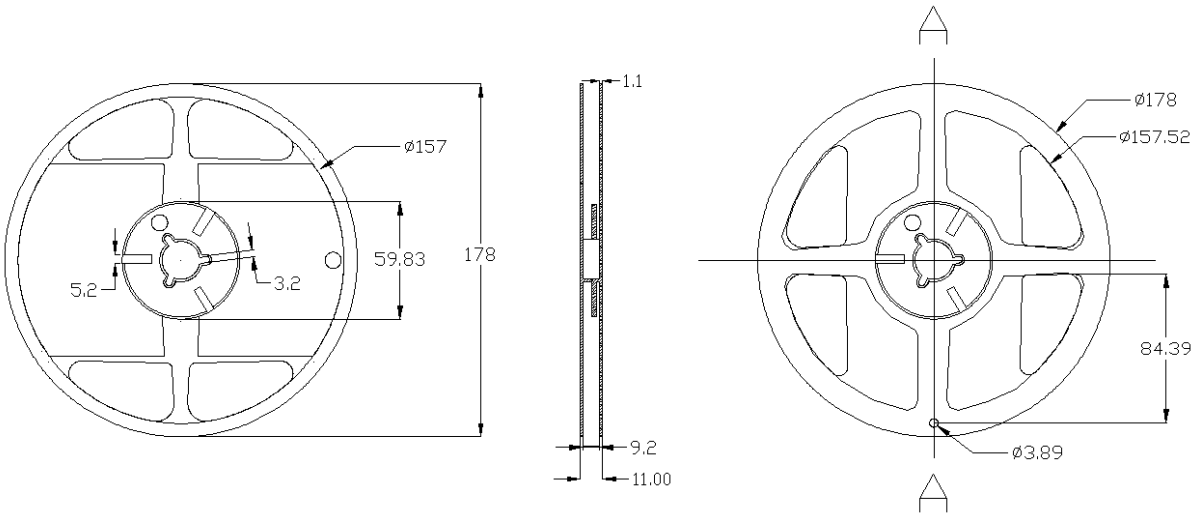
•Label Explanation

ITEM CODE:PARA LIGHT

PART NO: LT670WDT-UV-CW-B-S3

LOT NO: Batch number

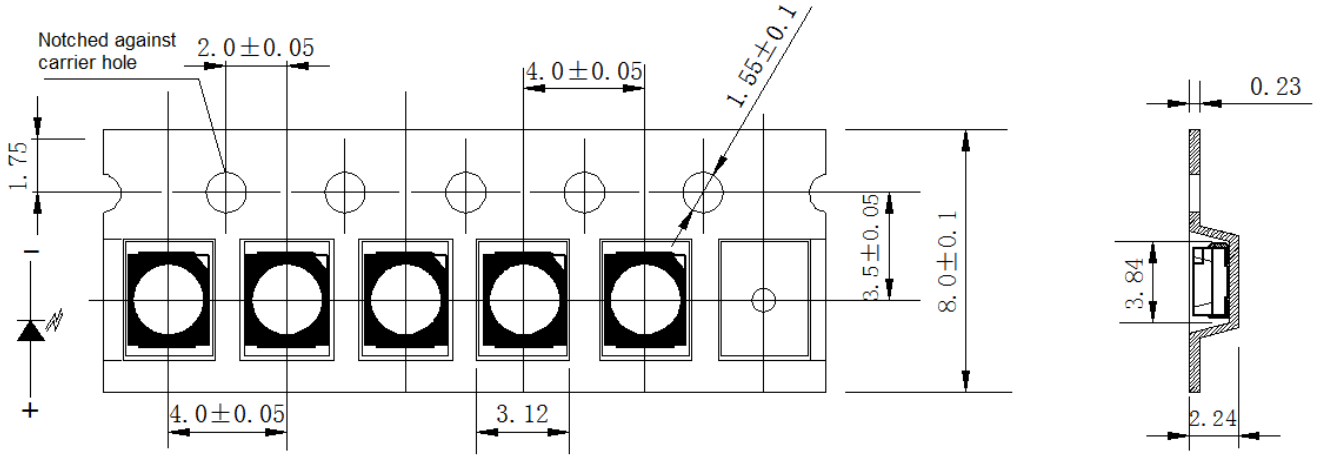
•Reel Dimensions



Notes:

1. Taping Quantity : 2000pcs
2. The tolerances unless noted is±0.1mm, Angle±0.5°, Unit: mm.

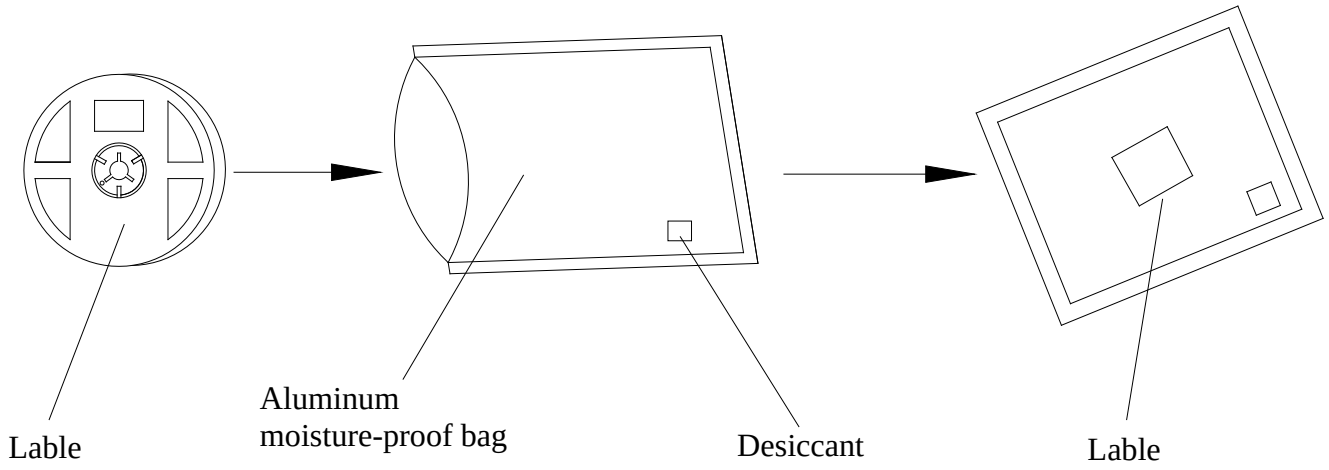
● Packaging



Note: Tolerance unless mentioned is ±0.1mm; Unit = mm

Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel.

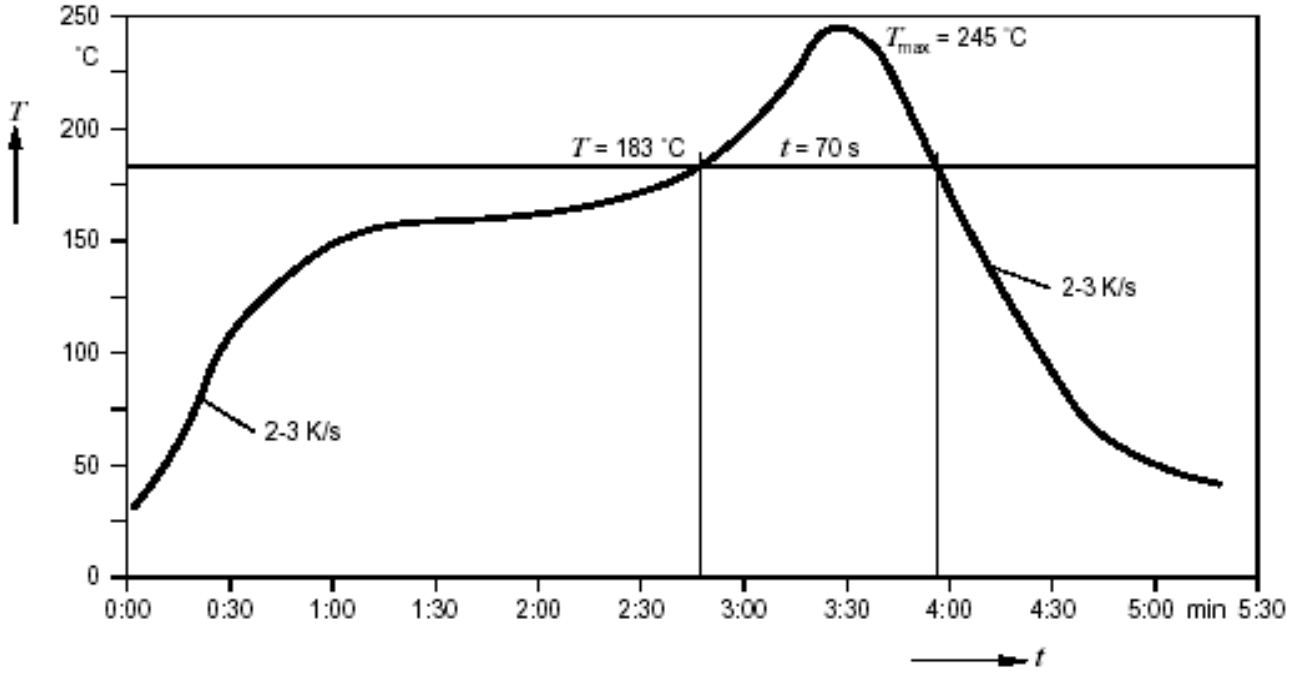
• Moisture Resistant Packaging



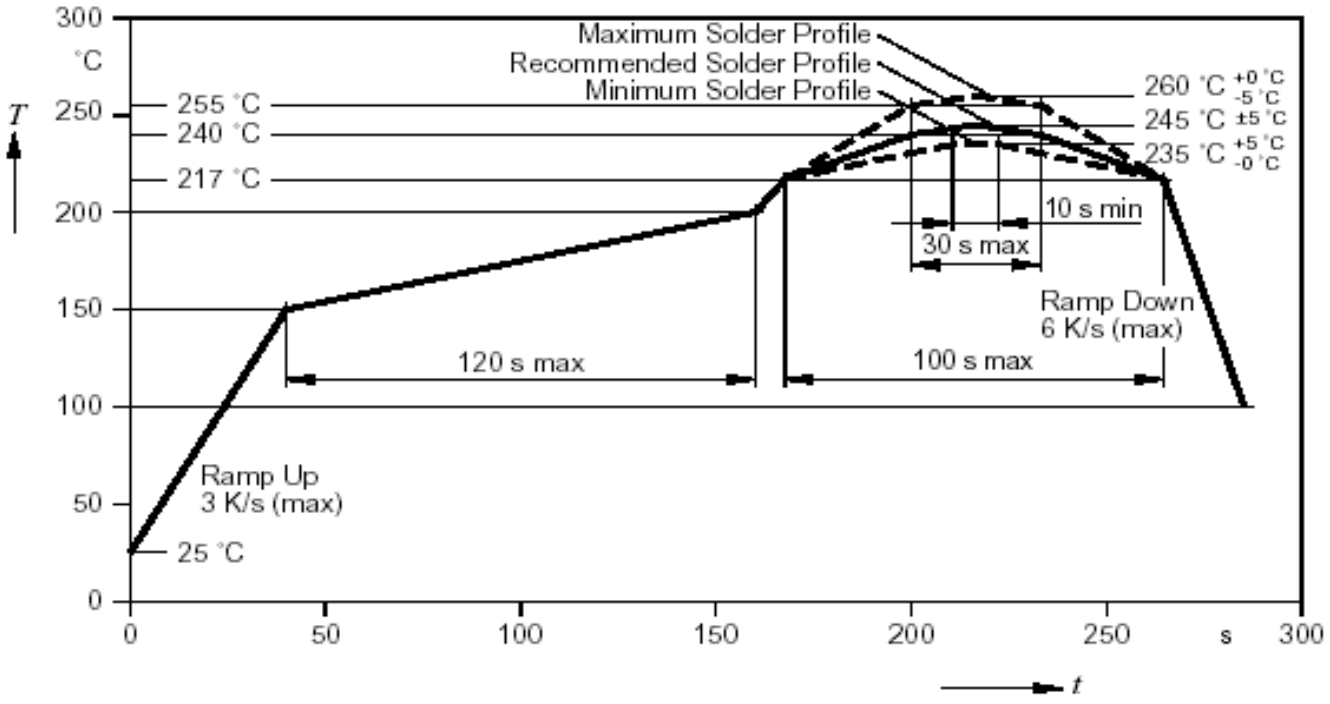
● Cleaning

- ＊ If cleaning is required , use the following solutions for less than 1 minute and less than 40℃.
- ＊ Appropriate chemicals: isopropyl alcohol. (When using other solvents, it should be confirmed beforehand whether the solvents will dissolve the package and the resin or not.)
- ＊ Effect of ultrasonic cleaning on the LED resin body differs depending on such factors as ultrasonic power and the assembled condition. Before cleaning, a pre-test should be confirm whether any damage to the LEDS will occur.

- Suggest Sn/Pb IR Reflow Soldering Profile Condition:



- Suggest Pb-Free IR Reflow Soldering Profile Condition:



● CAUTIONS

1. Static Electricity:

* Static electricity or surge voltage damages the LEDs.
It is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.
* All devices, equipment and machinery must be properly grounded.
It is recommended that measures be taken against surge voltage to the equipment that mounts the LEDs.
* When inspecting the final products in which LEDs were assembled, it is recommended to check whether the assembled LEDs are damaged by static electricity or not. It is easy to find static-damaged LEDs by a light-on test or a VF test at a lower current (blew 1mA is recommended).
* Damaged LEDs will show some unusual characteristics such as the leak current remarkably increases, the forward voltage becomes lower, or the LEDs do not light at the low current.
Criteria: (VF>2.0V,at IF=0.5m A)

2. Storage :

* Before opening the original package, it is recommended to store it in the following environment: temperature: 5 ℃ ~ 30 ℃ / humidity: maximum relative humidity: 60%.
* After opening the original package, the LED should be used within 24 hours (1 day). Once installed, the welding should be fast.The workshop temperature shall be controlled at 5 ~ 30 ° C and 30% or lower relative humidity.
* In order to avoid moisture absorption, it is recommended to store the LED removed from the original packaging in a sealed container with appropriate desiccant or in a dryer with nitrogen environment.
* The storage time of the original packaged products shall be less than 3 months. If the hygroscopic material (silica gel) fades or the LED is stored from the original packaging for more than 168 hours (7 days), it shall be baked at 65 ℃ for at least 48 hours; For all baked products, it is recommended to try 1-3 rolls first, and then put them into mass production without abnormality.

3. Soldering:

Do not apply any stress to the LED lens during soldering while the LED is at high temperature.
Recommended soldering condition.

* Reflow Soldering :

Pre-heat 120~150°C, 120sec. MAX., Peak temperature : 240°C Max. Soldering time : 10 sec Max.

* Soldering Iron : (Not recommended)

Temperature350°C Max., Soldering time : 3 sec. Max.(one time only), power dissipation of iron : 20W Max. use SN60 solder of solder with silver content and don’t to touch LED lens when soldering.

4. Lead-Free Soldering

For Reflow Soldering :

1、Pre-Heat Temp: 150-180℃,120sec.Max.

2、Soldering Temp: Temperature Of Soldering Pot Over 240℃,40sec.Max.

3、Peak Temperature: 260℃，10sec.

4、Reflow Repetition: 2 Times Max.

5、Suggest Solder Paste Formula : 93.3 Sn/3.1 Ag/3.1 Bi/0.5 Cu

For Soldering Iron (Not Recommended) :

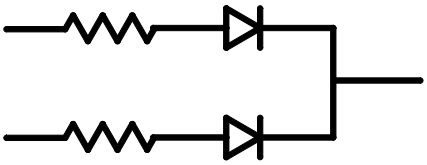
1、Iron Tip Temp: 350℃ Max.

2、Soldering Iron: 30w Max.

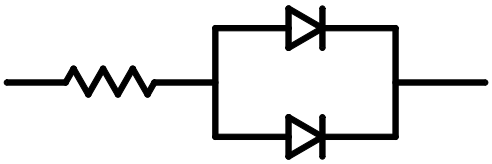
3、Soldering Time: 3 Sec. Max. One Time.

5. Drive Method

Circuit model A



Circuit model B



(A)Recommended circuit.

(B)The difference of brightness between LED`s could be found due to the Vf-If characteristics of LED.

6. Reliability

①、Criteria For Judging The Damage

Item	Symbol	Test Conditions	Criteria for Judgement	
			MIN.	Max.
Forward Voltage	VF	IF=20mA	-	U.S.L.*)×1.1
Reverse Current	IR	VR=5V	-	U.S.L.*)×2.0
Luminous Intensity	IV	IF=20mA	L.S.L**)×0.7	-

*) U.S.L.: Upper Standard Level

**) L.S.L: Lower Standard Level

②、Test Items And Results

Test Item	Reference Standard	Test Condition	Note	Number of Damaged
Resistance to Soldering Heat (Reflow Soldering)	JEITA ED-4701300 301	Tsld=260℃,10sec. (Pre treatment 30℃,70%,168hrs)	2times	0/50
Solder ability (Reflow Soldering)	JEITA ED-4701300 303	Tsld=215℃,3sec. (Lead Solder)	1time over 95%	0/50
Thermal Shock	JEITA ED-4701300 307	-40℃ ~ 100℃ 30min. 30min.	100cycles	0/50
Temperature Cycle	JEITA ED-4701100 105	-40℃ ~ 25℃~100℃~25℃ 30min. 5min. 30min. 5min	100cycles	0/50
High Temperature Storage	JEITA ED-4701200-201	Ta=100℃	1000hrs.	0/50
Temperature Humidity Storage	JEITA ED-4701100 103	Ta=60℃,RH=90%	1000hrs.	0/50
Low Temperature Storage	JEITA ED-4701200 202	Ta=-40℃	1000hrs.	0/50
Steady State Operating Life Condition		Ta=25℃,IF=20mA	1000hrs.	0/50
Steady State Operating Life of High Temperature		Ta=85℃,IF=5mA	500hrs.	0/50
Steady State Operating Life of High Humidity Heat		Ta=60℃,RH=90%,IF=15mA	500hrs.	0/50
Steady State Operating Life of Low Temperature		Ta=-30℃,IF=20mA	500hrs.	0/50
Vibration	JEITA ED-4701400 403	100~2000~100HzSweep 4min.200m/s^2 3direction,4cycles	48min	0/50
Substrate Bending	JEITA ED-4702	3mm,5±1sec	1time	0/50
Stick	JEITA ED-4702	5N,10±1sec	1time	0/50

7.Others:

The appearance and specifications of the product may be modified for improvement without notice.